

REMARKS

Responsive to the outstanding Office Action, applicant has carefully studied the Examiner's rejections. The claims pending in this application are claims 10-18. Favorable reconsideration of the application in light of the following detailed arguments is respectfully requested.

## REJECTIONS UNDER 35 USC §103

The Examiner has rejected all of the pending claims, that is claims 10-18 as being unpatentable over DE 41 31 576 A1 (Winhold, English translation.) The Examiner states that it would have been obvious for one skilled in the art to modify the Winhold reference to arrive at the presently claimed invention because Winhold teaches a similar heat recovery process wherein the heat of 1,2-dichloroethane obtained from a direct chlorination reactor is recovered and utilized in subsequent processing steps.

Claim 1 defines a process for heat recovery in the production of 1,2-dichloroethane from chlorine and ethene by direct chlorination. The vaporous 1,2-dichloroethane obtained from a direct chlorination reactor is compressed without phase change and then fed to heat exchangers for heat recovery.

The Examiner's attention is directed towards the applied reference Winhold. Winhold teaches that a gas containing 1,2-dichloroethane is compressed. This gas is obtained from a "high boiling point fraction separation column 1" (page 6, line 7) and a part of this compressed gas is fed to vaporizer 6 of dehydration column 2 (page 7, line

6.) This is in contrast to the Examiner's assertion that Winhold shows vaporous 1,2-dichloroethane which is obtained from a direct chlorination reactor is compressed and fed to a vaporizer.

It is respectfully submitted that the Winhold reference differs from the present invention in several significant ways. In Winhold, the reboiler of the high boiling point fraction separation column is operated by liquid 1,2-dichloroethane which is not compressed. In the present invention, it is operated by vaporous 1,2-dichloroethane which is compressed and superheated.

Additionally, Winhold utilizes the vapors of the high boiling point fraction separation column for heat recovery after compression. In the current invention, as described, no compression of the vapors of the high boiling point fraction separation column 1 occurs.

Winhold also teaches that the feed of the high-boiling point fraction separation column 1 is a mixture of crude 1,2-dichloroethane 14 deriving from an oxychlorination plant and 1,2-dichloroethane coming from a direct chlorination plant. Thus, no 1,2 dichloroethane obtained by a direct chlorination reactor is leaving the high boiling point fraction separation column 1 in vaporous form.

Another distinction lies in the fact that the vapor of the direct chlorination plant is not shown in Winhold. It may be that the direct chlorination reactor is operated without boiling, but Winhold is silent as to this detail. 1,2- dichloroethane only comes in liquid form giving heat in reboiler 4 and feeding liquid product by line 37 into feedback container 43. One skilled in the art would recognize from this that there is no vaporous

dichloroethane obtained from a direct chlorination reactor. Therefore, it cannot be compressed nor fed to a vaporizer as is claimed in independent claim 1.

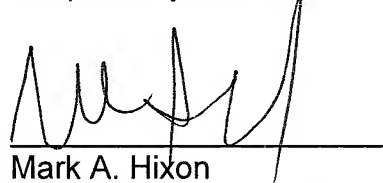
From the above, it will be recognized that the vapor to be compressed is different than that disclosed by Winhold. It is respectfully submitted that Winhold can thus not be modified to disclose the present invention as it would be improper to generalize the vapor to be compressed and the location of the compression.

It is well known that gas can be compressed while heating and then that the heat can be used at a higher level than had been possible prior to compression, and then to expand the compressed gas afterwards. This is used in several types of refrigeration systems, for example. 1,2-dichloroethane, however, is a strongly poisonous substance and must be handled with great care. Compressors on an industrial scale are expensive pieces of equipment, especially those suitable for use with a material such as 1,2-dichloroethane, and they consume electrical energy which is much more expensive than the use of waste heat. For at least this reason, the process of DE 41 31 576 A1 is not desirable or useful on an industrial scale, as it is not cost effective. Therefore, one skilled in the art would not generally consider the use of compression (a compressor) to be worthwhile, outside of the disclosure of the present invention. One skilled in the art would simply not be motivated to utilize such a costly piece of equipment.

SUMMARY

As it is believed that the stated rejection of the application has been overcome it is respectfully submitted that this application is in condition for allowance. It is also submitted that if the Examiner should apply a new art rejection against this application in view of applicant's overcoming the present rejection, that any office action based thereupon should be non-final. Should the Examiner wish to modify the application in any way, applicant's attorney suggests a telephone interview in order to expedite the prosecution of the application.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Mark A. Hixon', written over a horizontal line.

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